

Atty Dkt. No.: CLON-028
USSN: 09/976,673

AMENDMENTS

In the claims:

Please enter the following amendments:

1. **(Currently Amended)** A nucleic acid present in other than its natural environment, wherein said nucleic acid encodes a far red shifted *Stichodactylidaen* chromoprotein or fluorescent mutant thereof, and wherein said nucleic acid has a sequence similarity of at least about 75% with a nucleotide sequence of SEQ ID NO: 11.
2. **(Original)** The nucleic acid according to Claim 1, wherein said nucleic acid is isolated.
3. **(Previously Presented)** A nucleic acid present in other than its natural environment, wherein said nucleic acid encodes a fluorescent protein having an emission maximum ranging from about 620 to 680 nm.
4. **(Original)** The nucleic acid according to Claim 3, wherein said nucleic acid is isolated.
5. **(Currently Amended)** A nucleic acid present in other than its natural environment having a sequence similarity of at least about 80% with a nucleotide sequence of SEQ ID NO: 11 ~~chosen from SEQ ID NOS: 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 23, 25 and 27.~~
6. **(Previously Presented)** The nucleic acid according to Claim 5, wherein said sequence similarity is at least about 90%.

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7. (Currently Amended) A fragment of the nucleic acid selected from the group consisting of:

~~(a) a nucleic acid that encodes a far red shifted *Stichodactylidae* chromoprotein or fluorescent mutant thereof;~~

(b)(a) a nucleic acid that encodes fluorescent protein having an emission maximum ranging from about 620 to 680 nm; and

~~(c)(b)~~ a nucleic acid having a sequence of similarity of at least about 80% with a nucleotide sequence of SEQ ID NO: 11 chosen from SEQ ID NOS: 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 23, 25 and 27;

wherein said fragment encodes a fluorescent product and is present in other than its natural environment.

8. (Currently Amended) An isolated nucleic acid or mimetic thereof that hybridizes under stringent conditions to a nucleic acid selected from the group consisting of:

~~(a) a nucleic acid that encodes a far red shifted *Stichodactylidae* chromoprotein or fluorescent mutant thereof;~~

(b)(a) a nucleic acid that encodes fluorescent protein having an emission maximum ranging from about 620 to 680 nm; and

~~(c)(b)~~ a nucleic acid having a sequence of similarity of at least about 80% with a nucleotide sequence of SEQ ID NO: 11; chosen from SEQ ID NOS: 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 23, 25 and 27;;

or its complementary sequence, wherein said stringent conditions are at least as stringent as hybridization at about 50°C and about 0.1xSSC 42°C in a solution comprising 50% formamide, 5 x SSC, 50 mM sodium phosphate, 5 x Denhardt's solution, and 10% dextran sulfate.

9. (Currently Amended) A construct comprising a vector and a nucleic acid selected from the group consisting of:

~~(a) a nucleic acid that encodes a far red shifted *Stichodactylidae* chromoprotein or fluorescent mutant thereof;~~

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~~(b)(a)~~ a nucleic acid that encodes fluorescent protein having an emission maximum ranging from about 620 to 680 nm; and

~~(e)(b)~~ a nucleic acid having a sequence of similarity of at least about 80% with a nucleotide sequence of SEQ ID NO: 11 ~~chosen from SEQ ID NOS: 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 23, 25 and 27.~~

10. **(Currently Amended)** An expression cassette comprising:

(a) a transcriptional initiation region functional in an expression host;

(b) a nucleic acid selected from the group consisting of the nucleic acids of:

~~(i) a nucleic acid that encodes a far red shifted *Stichodactylidae* an chromoprotein or fluorescent mutant thereof;~~

~~(ii)(i)~~ a nucleic acid that encodes fluorescent protein having an emission maximum ranging from about 620 to 680 nm; and

~~(iii)(ii)~~ a nucleic acid having a sequence of similarity of at least about 80% with a nucleotide sequence of SEQ ID NO: 11 ~~chosen from SEQ ID NOS: 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 23, 25 and 27;~~ and

(c) and a transcriptional termination region functional in said expression host.

11. **(Original)** A cell, or the progeny thereof, comprising an expression cassette according to Claim 10 as part of an extrachromosomal element or integrated into the genome of a host cell as a result of introduction of said expression cassette into said host cell.

12. **(Previously Presented)** A method of producing an *Anthozoan* chromo and/or fluorescent protein, said method comprising:

growing a cell according to Claim 11, whereby said protein is expressed; and isolating said protein substantially free of other proteins.

13.-17. **(Canceled)**

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18. **(Currently Amended)** In an application that employs a nucleic acid encoding a chromo- or fluorescent protein, the improvement comprising:
employing a nucleic acid selected from the group consisting of:

~~(i) a nucleic acid that encodes a far red shifted *Stichodactylidae* chromoprotein or fluorescent mutant thereof;~~

~~(ii)(i)~~ a nucleic acid that encodes fluorescent protein having an emission maximum ranging from about 620 to 680 nm; and

~~(iii)(ii)~~ a nucleic acid having a sequence of similarity of at least about 80% with a nucleotide sequence of SEQ ID NO: 11 chosen from ~~SEQ ID NOS: 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 23, 25 and 27.~~

19. **(Currently Amended)** A kit comprising:
a nucleic acid selected from the group consisting of:

~~(i) a nucleic acid that encodes a far red shifted *Stichodactylidae* chromoprotein or fluorescent mutant thereof;~~

~~(ii)(i)~~ a nucleic acid that encodes fluorescent protein having an emission maximum ranging from about 620 to 680 nm; and

~~(iii)(ii)~~ a nucleic acid having a sequence of similarity of at least about 80% with a nucleotide sequence of SEQ ID NO: 11 chosen from ~~SEQ ID NOS: 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 23, 25 and 27;~~ and

instructions for using said nucleic acid.

20. **(Currently Amended)** A fragment of the nucleic acid selected from the group consisting of:

~~(a) a nucleic acid that encodes a far red shifted *Stichodactylidae* chromoprotein or fluorescent mutant thereof;~~

~~(b)(a)~~ a nucleic acid that encodes fluorescent protein having an emission maximum ranging from about 620 to 680 nm; and

~~(c)(b)~~ a nucleic acid having a sequence of similarity of at least about 75% with a nucleotide sequence of SEQ ID NO: 11 chosen from ~~SEQ ID NOS: 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 23, 25 and 27;~~

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wherein said fragment encodes a fluorescent product and is present in other than its natural environment.

21. **(Currently Amended)** An isolated nucleic acid or mimetic thereof that hybridizes under stringent conditions to a nucleic acid selected from the group consisting of:

~~(a) a nucleic acid that encodes a far red shifted *Stichodactylidaen* chromoprotein or fluorescent mutant thereof;~~

~~(b)~~(a) a nucleic acid that encodes fluorescent protein having an emission maximum ranging from about 620 to 680 nm; and

~~(c)~~(b) a nucleic acid having a sequence of similarity of at least about 75% with a nucleotide sequence of SEQ ID NO: 11; chosen from SEQ ID NOS: 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 23, 25 and 27;

or its complementary sequence, wherein said stringent conditions are at least as stringent as hybridization at ~~about 60°C and about 0.1xSSC~~ 42°C in a solution comprising 50% formamide, 5 × SSC, 50 mM sodium phosphate, 5 × Denhardt's solution, and 10% dextran sulfate.

22. **(Currently Amended)** A construct comprising a vector and a nucleic acid selected from the group consisting of:

~~(a) a nucleic acid that encodes a far red shifted *Stichodactylidaen* chromoprotein or fluorescent mutant thereof;~~

~~(b)~~(a) a nucleic acid that encodes fluorescent protein having an emission maximum ranging from about 620 to 680 nm; and

~~(c)~~(b) a nucleic acid having a sequence of similarity of at least about 75% with a nucleotide sequence of SEQ ID NO: 11; chosen from SEQ ID NOS: 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 23, 25 and 27.

23. **(Currently Amended)** An expression cassette comprising:

(a) a transcriptional initiation region functional in an expression host;

(b) a nucleic acid selected from the group consisting of the nucleic acids of:

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- (i) ~~a nucleic acid that encodes a far red shifted *Stichodactylidae* chromoprotein or fluorescent mutant thereof;~~
- (ii)(i) a nucleic acid that encodes fluorescent protein having an emission maximum ranging from about 620 to 680 nm; and
- (ii)(ii) a nucleic acid having a sequence of similarity of at least about 75% with a nucleotide sequence of SEQ ID NO: 11 ~~chosen from SEQ ID NOS: 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 23, 25 and 27;~~ and
- (c) and a transcriptional termination region functional in said expression host.

24. (Currently Amended) In an application that employs a nucleic acid encoding a chromo- or fluorescent protein, the improvement comprising:
employing a nucleic acid selected from the group consisting of:

- (i) ~~a nucleic acid that encodes a far red shifted *Stichodactylidae* chromoprotein or fluorescent mutant thereof;~~
- (ii)(i) a nucleic acid that encodes fluorescent protein having an emission maximum ranging from about 620 to 680 nm; and
- (ii)(ii) a nucleic acid having a sequence of similarity of at least about 75% with a nucleotide sequence of SEQ ID NO: 11 ~~chosen from SEQ ID NOS: 01, 03, 05, 07, 09, 11, 13, 15, 17, 19, 23, 25 and 27.~~